

Appln. Serial No. 09/982,481
Amendment Dated August 8, 2007
Reply to Office Action Mailed May 8, 2007

REMARKS

In the Office Action dated May 8, 2007, claims 44-48, 50, 53, 54, 56, 59, 60, and 63-82 were rejected under 35 U.S.C. § 101; claims 44-48, 50, 53, 54, 56, 59, 60, and 63-82 were rejected under § 102 over D. Keim et al., "Pixel Bar Charts: A New Technique for Visualizing Large Multi-Attribute Data Sets Without Aggregation," HP Technical Report, April 2001 (Keim HP Technical Report); claims 44-48, 50, 53, 54, 56, 59, 60, and 63-82 were rejected under § 102 over M. Ankerst et al., "Towards an Effective Cooperation of the Computer and the User for Classification," Proc. 6th Int. Conf. on Knowledge Discovery and Data Mining (Ankerst); and claims 44-48, 50, 53, 54, 56, 59, 60, and 63-82 were rejected under § 102 over M.C. Hao et al., "Visual Mining of E-customer Behavior Using Pixel Bar Charts," HP Technical Report, June 20, 2001 (Hao HP Technical Reference).

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REJECTION UNDER 35 U.S.C. § 101

Independent claim 50 was rejected under § 101 on two bases: (1) the “computer-readable medium” of claim 50 was asserted by the Office Action as “not necessarily” being “a computer-readable storage medium;” and (2) claim 44 fails to produce a useful and tangible result (practical application). 5/8/2007 Office Action at 7-8.

With respect to point (1), the Office Action also noted that the “claimed program code is not necessarily computer-executable instructions.” *Id.* To address this aspect of the § 101 rejection of claim 50, “computer-readable medium” in claim 50 has been replaced with “computer-readable storage medium.” Also, claim 50 has been amended to recite that the computer-readable program code embodied in the computer-readable storage medium is adapted to be executed by a computer. Therefore, the first aspect of the § 101 rejection of claim 50 has been addressed.

The Office Action also asserted that claim 50 does not recite a practical application. To address this issue, claim 50 has been amended to recite that the pixel bar chart is “for display on a display monitor.” The recitation that the pixel bar chart of claim 50 is for display on a display monitor provides a practical application, which is well recognized by persons of ordinary skill in the art. For example, in the Ankerst reference cited by the Office Action, Section 2 on page 2 refers to various “related work” concerning the visual representation of data. Moreover, Section 3 of Ankerst refers to visualizing a data set and also visualizing a decision tree based on the visualized data set. Ankerst is thus one example of the fact that visualizing data is recognized by persons of ordinary skill in the art to provide a practical application.

Therefore, the § 101 rejection of claim 50 has been overcome.

Independent claim 44 was also rejected under § 101. To address this, claim 44 has been amended to recite a method “executed by a computer” to form a pixel bar chart “for display on a display monitor.” Therefore, the § 101 rejection of claim 44 has also been overcome.

Independent claim 56 was rejected under § 101 for failure to recite a practical application. Note that claim 56 recites a computer system having a display device, a computer-readable memory, and a processor that executes a method for constructing a pixel bar

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chart for display on the display device. This language of claim 56 provides the practical application aspect sought by the Office Action.

Independent claim 81 has also been amended similarly to claim 44, and thus, the § 101 rejection of claim 81 has also been addressed.

In view of the foregoing, withdrawal of the § 101 rejection is respectfully requested.

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REJECTIONS UNDER 35 U.S.C. § 102 OVER THE KEIM HP TECHNICAL REPORT

In response to the Rule 132 Declaration submitted with the Reply to Office Action on March 14, 2007, the present Office Action asserted that the Rule 132 Declaration is insufficient to overcome the Keim HP Technical Report.

The Response to Arguments section of the Office Action cites to *no* rule or statute to support the positions taken in the Response to Arguments section that the Rule 132 Declaration is insufficient. In the previous Reply to Office Action, Applicant cited to several Federal Circuit and C.C.P.A. cases to support Applicant's position. The Office Action has failed to cite to any case law to rebut the cases cited by Applicant. In fact, the Office Action did not even acknowledge Applicant's citation of various cases, and did not provide any reasons regarding why those cases are inapplicable in the present scenario.

The Federal Circuit has held as follows:

When the joint and sole inventions are related, as they are here, A commonly discloses the invention of A & B in the course of describing his sole invention and when he so describes the *invention* of A & B he is not disclosing "prior art" to the A & B invention, even if he has legal status as "another."

In re Kaplan, 789 F.2d 1574, 1576, 229 U.S.P.Q. 678 (Fed. Cir. 1986).

In other words, according to the Federal Circuit in *In re Kaplan*, even though a prior reference had fewer authors than the application-at-issue (the prior reference has inventor A, whereas the application has inventors A and B), the Federal Circuit held that the prior reference can be removed as a reference if the prior reference describes the invention of A and B.

Similarly, in a C.C.P.A. case, the court stated that where inventor A commonly discloses (in an earlier reference) the invention of A and B, "he is not disclosing 'prior art' to the A and B invention, even if he has legal status as 'another'." *In re Land & Rogers*, 368 F.2d 866, 879, 151 U.S.P.Q. 621 (C.C.P.A. 1966).

In fact, in another C.C.P.A. case, *In re Facius*, 408 F.2d 1396, 161 U.S.P.Q. 294 (C.C.P.A. 1969), a discussion was made of one case in which a patent by one inventor (Dewey) was used to reject under § 102(e) an application by Mathews. *Id.* at 1405. Note that in this case, the prior reference had an author (Dewey) that was not even listed as an inventor on the application that was being rejected (which named only Mathews as the inventor). However, the

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court in *In re Facius* stated that an affidavit filed by Dewey stating that the relevant, unclaimed subject matter disclosed in the prior reference was not invented by Dewey, but was first disclosed to Dewey by Mathews, would be sufficient to overcome the § 102 rejection. *Id.*

The Rule 132 Declaration attributes the content of the Keim HP Technical Report to the Applicant of the present application (Ming C. Hao, Umeshwar Dayal, Meichun Hsu, Daniel A. Keim, Adrian Krug, and Julian Ladisch). The Rule 132 Declaration states that the entire content of the Keim HP Technical Report originated with or was obtained from the Applicant (including inventors Ming C. Hao, Umeshwar Dayal, Meichun Hsu, Daniel A. Keim, Adrian Krug, and Julian Ladisch) of the present application. As set forth in M.P.E.P. § 716.10, such attribution of a prior reference to the applicant is sufficient to remove the prior reference (in this case the Keim HP Technical Report) as prior art. *See* M.P.E.P. § 716.10, at 700-301.

In response, the Office Action stated that the Rule 132 Declaration constitutes "merely statements and are not supported by evidence." 5/8/2007 Office Action at 3. What the Office Action has failed to appreciate is that the Rule 132 Declaration, as signed by all inventors of the present application, in fact constitutes evidence in the form of sworn testimony. The named authors of the Keim HP Technical Report are Daniel Keim, Ming C. Hao, Julian Ladisch, Meichun Hsu, and Umeshwar Dayal, who are the same persons who made the testimony of the Rule 132 Declaration. Moreover, Adrian Krug has also joined in the Rule 132 Declaration. Thus, any statements made in the Rule 132 Declaration are based on the *personal knowledge* of the persons who have signed the Rule 132 Declaration.

Therefore, the assertion that the statements made in the Rule 132 Declaration are "speculated" is clearly unfounded, as the persons providing the statements in the Rule 132 Declaration are persons with *direct personal knowledge* of the content of the Keim HP Technical Report and the content of the present application. The Office Action has cited to no evidence that would contradict the statements made in the Rule 132 Declaration. Since the Rule 132 Declaration is the only competent (uncontradicted) evidence of record, disregarding such evidence as performed by the Office Action constitutes clear error. As noted by the M.P.E.P., an "uncontradicted 'unequivocal statement' from the applicant regarding the subject matter disclosed in an article, patent, or published application will be accepted as establishing inventorship." M.P.E.P. § 700-301 (8th ed., Rev. 5), at 700-301.

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The Rule 132 Declaration also states that the authors of the Keim HP Technical Report derived their knowledge of the subject matter described in the Keim HP Technical Report from the Applicant (including inventors Ming C. Hao, Umeshwar Dayal, Meichun Hsu, Daniel A. Keim, Adrian Krug, and Julian Ladisch) of the present application. As provided by M.P.E.P. § 2132.01, a Rule 132 Declaration that shows derivation of the subject matter of the prior reference from applicant is effective to remove the prior reference as prior art.

In response, the Office Action stated that Applicant has "failed to provide a date of the reduction to practice of the present application that may be prior to the publication date of Keim HP Technical Report as the Keim HP Technical Report is published several months before the filing date of the present application." 5/8/2007 Office Action at 3. There is no requirement by the M.P.E.P., or anywhere else in the rules or statutes, that reduction to practice must be shown to establish derivation of the subject matter of the prior reference from Applicant. The Office Action appears to have confused the derivation statement of the Rule 132 Declaration with the requirements associated with a Rule 131 declaration to swear behind a prior reference. The fact that the Keim HP Technical Report was published several months before the filing of the present application is entirely consistent with the fact that the authors of the Keim HP Technical Report derived their knowledge of the subject matter from the Applicant. An invention does not occur immediately, and the process of drafting a patent application does not occur immediately. The fact that the authors of the Keim HP Technical Report decided to publish aspects of the efforts of the Applicant does not contradict the fact that the authors of the Keim HP Technical Report derived their knowledge of the subject matter described in the Keim HP Technical Report from the Applicant.

The Office Action also made much of the fact that the Keim HP Technical Report is not fully described in the present application, and that the Keim HP Technical Report has differences from the present application. The Keim HP Technical Report is a scientific article, whereas the present application is a legal document. However, a review of the Keim HP Technical Report and the present application would reveal that the core subject matter as described in the present application is identical to the core content of the Keim HP Technical Report.

The Rule 132 Declaration also states that the Keim HP Technical Report describes the work of the Applicant (including inventors Ming C. Hao, Umeshwar Dayal, Meichun Hsu,

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Daniel A. Keim, Adrian Krug, and Julian Ladisch) of the present application. As provided by M.P.E.P. § 715.01(c), this is sufficient to remove the Keim HP Technical Report as a prior art reference.

The Rule 132 Declaration also states that through oversight on the part of the remaining inventors (Daniel A. Keim, Ming C. Hao, Julian Ladisch, Meichun Hsu, and Umeshwar Dayal), Adrian Krug was not listed as an author of the Keim HP Technical Report. Rule 132 Declaration, ¶ 3. In fact, Adrian Krug did substantively contribute to the subject matter of the Keim HP Technical Report, and thus should have been named as an author, and the failure to do so was an error on the part of the other co-inventors. *Id.* Rather than accept this testimony, the Office Action made the conclusion that the "inventor Adrian Krug has not contributed to the Keim HP Technical Report." This conclusion by the Office Action finds absolutely no support in actual evidence of record. The only evidence in the record is the testimony provided in the Rule 132 Declaration, which has not been contradicted by other evidence. Therefore, the Keim HP Technical Report has been overcome as a reference.

Since the Keim HP Technical Report does not constitute prior art against the present application, withdrawal of the § 102 rejection of the claims over the Keim HP Technical Report is respectfully requested.

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REJECTION UNDER 35 U.S.C. § 102 OVER ANKERST

Claim 44 is not anticipated by Ankerst.

Claim 44 recites constructing a pixel bar chart by partitioning the record-assigned pixels into groups along a first axis of the pixel bar chart according to a first dividing attribute, partitioning the record-assigned pixels in the groups into sub-groups along a second axis of the pixel bar chart according to a second dividing attribute, and after partitioning into the sub-groups, sorting, in each of the sub-groups, the record-assigned pixels according to a first ordering attribute along the first axis of the pixel bar chart, and according to a second ordering attribute along the second axis of the bar chart.

The Office Action identified "the last row of the pixel bar charts of Fig. 3 (of Ankerst)" as being "a pixel bar chart which is particularly sorted by the attribute 120." 5/8/2007 Office Action at 5, 18. The last row of Fig. 3 of Ankerst contains a visualization of training data for attribute 120. Note that the other bars of Fig. 3 of Ankerst visualizes data for other attributes, such as attribute 61, attribute 85, and attribute 90. Note also that the constructing element of claim 44 refers to the constructing of "the pixel bar chart." If the last row of Fig. 3 of Ankerst is taken to be the pixel bar chart of claim 44, as asserted by the Office Action, then the last row depicted in Fig. 3 of Ankerst cannot satisfy the partitioning and sorting tasks of claim 44, which refer to partitioning record-assigned pixels along a first axis of the pixel bar chart according to a first dividing attribute, partitioning the record-assigned pixels in the groups into sub-groups along a second axis of the pixel bar chart according to a second dividing attribute, and then sorting the record assigned pixels according to first and second ordering attributes in each of the sub-groups. Within the last row of Fig. 3, there is no partitioning of record-assigned pixels into groups and sub-groups along two different axes.

In the remaining parts of the rejection of claim 44, the Office Action appears to have taken an inconsistent position with the assertion that the last row of the pixel bar charts of Fig. 3 of Ankerst constitutes the pixel bar chart of claim 44. In the remaining parts of the rejection, the Office Action refers to Figs. 4, 5, and 7 of Ankerst, which depict other structures. These structures in Figs. 4, 5, and 7 are not equivalent to the last row in Fig. 3. In fact, Fig. 5 of Ankerst specifically refers to two different attributes in two different bars (attribute 1 and

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attribute 2). Thus, Fig. 5 does not show the content of the last row of Fig. 3. Fig. 4 of Ankerst visualizes a *decision tree* that is used for classification of data. The decision tree as visualized in Fig. 4 of Ankerst is not the same as the last row of Fig. 3.

In view of the inconsistent application of claim elements to different parts of Ankerst, the anticipation rejection is clearly defective.

Moreover, there are other defects in the rejection. As disclosing the first partitioning task of claim 44, namely "partitioning the record-assigned pixels into groups along a first axis of the pixel bar chart according to a first dividing attribute," the Office Action stated that Figs. 4 and 5 of Ankerst disclose pixels "organized into groups along the y-axis in accordance with the categorical attribute numbers" 5/8/2007 Office Action at 5, 18. The reference to "categorical attribute numbers" appears to refer to the numbers such as 1, 2, 61, 85, 90, and 120 in Figs. 3 and 5 of Ankerst. The "groups" along the y-axis referenced by the Office Action appears to be the different rows (or bars) depicted in Figs. 3 and 5 of Ankerst. This position that the multiple bars can be part of the pixel bar chart of claim 44 is inconsistent with the Office Action's contention earlier in the rejection that the last row of Fig. 3 is the pixel bar chart of claim 44. Moreover, the different rows representing different attributes depicted in Figs. 3 and 5 of Ankerst do not constitute partitioning record-assigned pixels into groups along a first axis of the pixel bar chart according to a first dividing attribute. All that is occurring in Figs. 3 and 5 of Ankerst is the provision of different "areas of the screen" to represent "different attributes." Ankerst, p. 3. Thus, there is no ordering of pixels according to any of the attributes depicted in Fig. 3 or 5 of Ankerst. For example, the provision of the rows in Fig. 3 of Ankerst are for different attributes; there is no ordering of pixels along the y-axis of Fig. 3 according to any of the attributes, such as attribute 61, 85, 90, or 120 in Fig. 3 of Ankerst.

A further element of claim 44 is that after partitioning into the sub-groups, sorting is performed in each of the sub-groups, with the record-assigned pixels sorted according to a first ordering attribute along the first axis of the pixel bar chart, and according to a second ordering attribute along the second axis of the pixel bar chart. As disclosing this feature, the Office Action stated that the ordering of pixels within each sub-group is "in accordance with the categorical attribute numbers and the first group of the class partitions is ordered in the lower level and the second group of the class partitions is ordered in the upper level" 5/8/2007

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Office Action at 6, 19. Again, the statement that ordering is in accordance with the categorical attribute numbers does not disclose sorting record-assigned pixels within each sub-group according to a first ordering attribute.

Moreover, an even more fundamental error made by the Office Action is that there is no disclosure in Ankerst of sorting record-assigned pixels within each sub-group according to a second ordering attribute along the second axis of the pixel bar chart. The Office Action stated that Figs. 3-5 and 7 of Ankerst "discloses the second ordering attribute on the x-axis, e.g., the second ordering attribute ordered according to the attribute values following into Class A, Class B, or Class C by splitting the pixels into the set of class partitions in accordance with the splitting attribute wherein the second ordering attribute is the class partition attribute or the splitting attribute characterized by the categorical attribute numbers following into the class partitions." 5/8/2007 Office Action at 6-7, 19. Note that the ordering of pixels along each row in Fig. 3 is according to the corresponding attribute of that row. For example, the ordering of pixels in the last row of Fig. 3 of Ankerst is according to attribute 120. Similarly, the ordering of pixels in the row corresponding to attribute 90 would be according to attribute 90. The Office Action has apparently identified parts of multiple rows depicted in Figs. 3 and 5 as being a sub-group; however, since the multiple rows are ordered according to different attributes along the x-axis, it would be impossible for Ankerst to order pixels in each sub-group (which was asserted by the Office Action as including parts of multiple rows) according to a second ordering attribute along the second axis of the pixel bar chart.

In view of the foregoing, it is clear that Ankerst does not anticipate the subject matter of claim 44.

Independent claims 50 and 56 are similarly allowable over Ankerst.

Independent claim 81 is also allowable over Ankerst, which fails to disclose assigning records to respective data points of a pixel bar chart, and partitioning the data points into groups and sub-groups according to respective first and second dividing attributes. Nor does Ankerst disclose sorting, in each sub-group, the data points according to first and second ordering attributes.

Dependent claims, including newly added dependent claims 83-90, are allowable for at least the same reasons as corresponding independent claims.

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REJECTION UNDER 35 U.S.C. § 102 OVER THE HAO HP TECHNICAL REPORT

As disclosing the partitioning of record-assigned pixels into groups along a first axis of the pixel bar chart according to a first dividing attribute, as recited in claim 44, the Office Action cited the dividing along the x-axis such as "month," as depicted in Figs. 1, 2, 4, and 6 of the Hao HP Technical Report. 5/8/2007 Office Action at 25.

As disclosing the second partitioning clause, namely partitioning the record-assigned pixels in the groups into sub-groups along a second axis of the pixel bar chart according to a second dividing attribute, the Office Action cited page 3 of the Hao HP Technical Report, and specifically to the passage on page 3 that refers to "ordering of pixels (y-axis) is based on attribute values, e.g., purchase amount or search type." Note that the statement in the cited passage of the Hao HP Technical Report is *ordering* of pixels in the y-axis based on attribute values, not "partitioning" of the pixels along the y-axis. Therefore, the citation of this passage of page 3 of the Hao HP Technical Report as disclosing the second partitioning clause of claim 44 is in error.

The Office Action also cited Fig. 2 of the Hao HP Technical Report on page 2, which depicts a "pixel bar chart construction." The Office Action stated that the "sub-groups are the clusters of pixels having the same attribute values of the second ordering attribute and the second ordering attribute is the same as the second dividing attribute." 5/8/2007 Office Action at 25. Note, however, that the specific pixel bar chart construction as described in Section 3.1 of the Hao HP Technical Report refers to (1) dividing the x-axis space by grouping the pixels into rectangles according to the grouping attribute (e.g., months); (2) filling the rectangles with pixels from the bottom and placing them in the order inside each rectangle according to the pixel ordering attribute (e.g., dollar amount for y-ordering and number of visits for the x-ordering); and (3) coloring the pixels according to the pixel coloring attribute. In the construction of the pixel bar chart of Fig. 2 described in the Hao HP Technical Report, there is only one partitioning, along the x-axis for different months. There is no partitioning along the y-axis. Instead, along the y-axis, each rectangle corresponding to the partitions along the x-axis are filled with pixels and ordered according to an ordering attribute.

In view of the foregoing, it is clear that claim 44 is not anticipated by Hao.

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Independent claims 50 and 56 are similarly allowable over the Hao HP Technical Report.

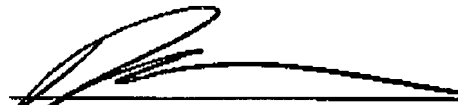
With respect to claim 81, the Hao HP Technical Report does not disclose assigning records to respective data points of a pixel bar chart, and partitioning the data points into groups and sub-groups according to respective first and second dividing attributes, and sorting, in each sub-group, the data points according to first and second ordering attributes.

Dependent claims are allowable over the Hao HP Technical Report for at least the same reasons as corresponding claims.

Allowance of all claims is respectfully requested. The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 08-2025 (10014772-1).

Respectfully submitted,

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